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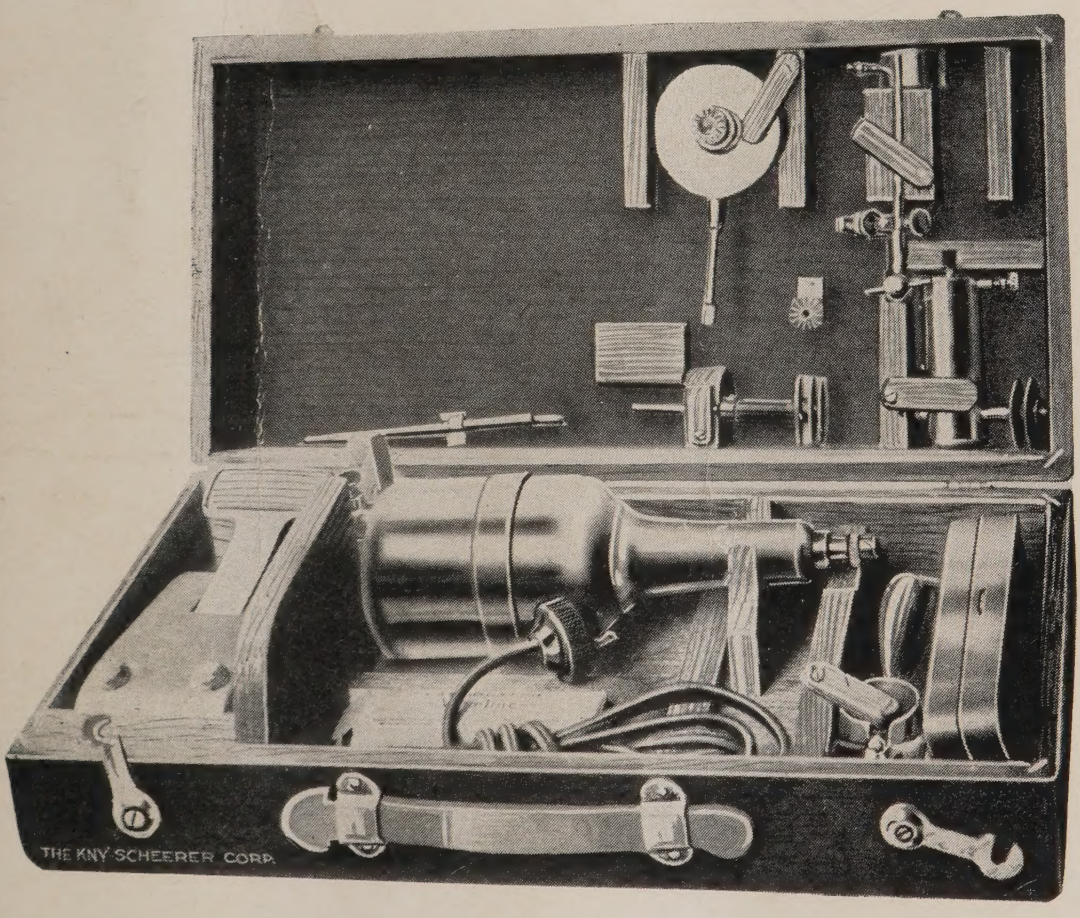
BONE SURGERY

WITH

THE IMPROVED ALBEE

Electro Operative Instruments

(PATENT PENDING)



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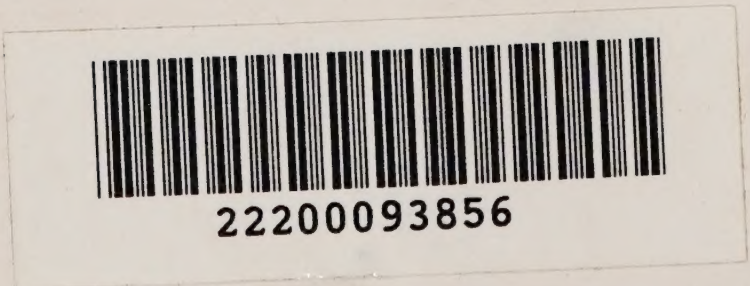
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The Albee Method

of

Bone Transplantation

is the Mending
of Ununited
Fractures with
Nature's Own
Materials

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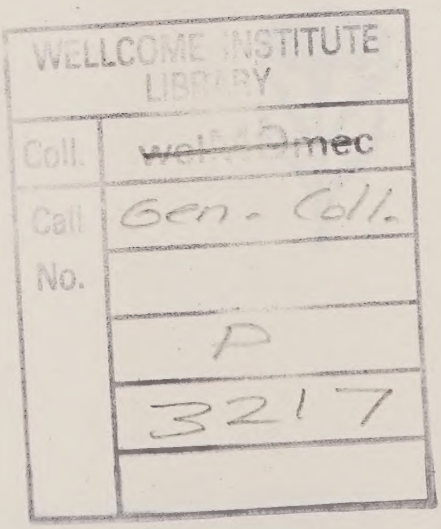


THE ALBEE ELECTRO OPERATIVE SURGERY SET

UP to the year 1911, the bone transplant had been so infrequently used as a surgical agent that no special technique had been developed for its removal or modeling, and the development of Dr. Albee's Electro Operative Set (herein described) and its technique of usage date from this time.

Fig. 1. The manner of holding saw, foot switch, and connection to electric wall fixture. Method of connecting tank of normal saline solution, and spray attachment.

Dr. Fred H. Albee began his spinal work by removing the graft from the tibia with chisel and mallet, and later others made use of the Gigli saw. It was soon found that these methods were not only slow and inaccurate, but that they presented the dangers of bruising or fracturing the graft or tibia, or both. This is especially true in adult patients, on account of the brittleness and thickness of the cortex. In children, on account of the small diameter of the bone, the danger of fracture of either the graft or the remaining portion of the tibia is evident, although the graft is obtained by means of hand tools with much less difficulty and

much less likelihood of fracture, than in adults.

Also, in obtaining grafts 8 inches or more in length, it was found that the hand tool methods were crude, requiring too much time, tiring the surgeon and unnecessarily shocking the patient. In removing the graft with the chisel and mallet, the graft must many times be handled and shaped after its removal, whereas with the circular motor-driven saw, a pattern marked in the periosteum with a

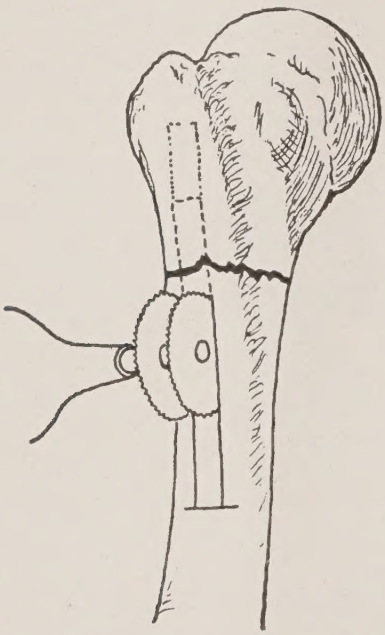


Fig.2 Preparing gutter for inlay of tibial graft in a fracture at the neck of the humerus.

scalpel can be followed accurately and the graft shaped in situ during its removal. The graft pattern is usually obtained by the careful use of compasses or calipers, or by bending a flexible probe or leaden bar into the prepared graft-bed, whose shape is transferred to the tibial surface from which the transplant is to be removed.

In modelling the graft into dowels, wedges, inlays, and in making use of the well known mechanical devices, such as tongue and groove joint, dove-tail joints, mortises, etc., the motor outfit is still more indispensable. An accurate cabinet maker fit may mean success in many instances where an ordinary crude coaptation would mean failure. Especially is this true in ununited fractures.

The scepticism as to the value of the graft, plus the difficulty in obtaining and moulding it, has undoubtedly delayed the earlier development of the use of this most

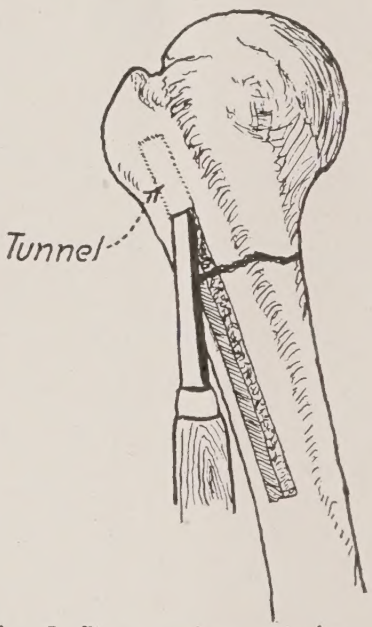


Fig 3. Removing strips of bone forming a gutter with tunnel so as to lengthen gutter and get a longer contact of graft into head of humerus.

valuable surgical agent. It is difficult to give an adequate reason why in the rapid advance of surgery the work of osteoplasty has, until very recently, stood for so long a time practically at a standstill, especially in view of the fact that Ollier, in 1858, from extensive animal experiments and surgical work—although working in the pre-antiseptic era—furnished abundant evidence that the autoplastic bone graft survived and

lived when consisting of cortex, periosteum, and endosteum, and inplanted into a bony defect where it had function to perform.

As in many other fields of endeavor, electric power has been an important contributing means of placing this valuable agent at the disposal of the surgeon. In recent years the generalization of the use of electricity for lighting, heating, and power purposes in most hospitals, private dwellings, etc., has also been a potent influence, and has enabled the surgeon always to be in reach of the necessary power

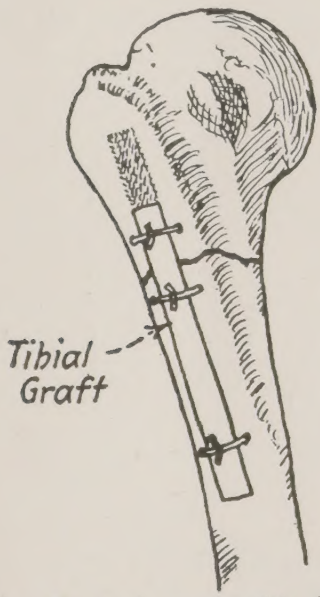


Fig. 4. Inlay graft fixed in place with kangaroo tendon.

for operating his motor outfit—whether he is operating in the city, suburban hospital, or private dwelling. The electric automobile or storage battery can also be made to furnish a movable source of supply which can be utilized at any time or place.

The ideal surgical electro-motor outfit should measure up to the following requirements:

1. It should permit of the thorough and rapid sterilization of every part which comes in contact with the surgeon or in the field of operation, including the electric cable for transmitting the power. The rapidity of sterilization is important as the outfit may have to be used in several consecutive operations.

2. It should permit of ready application to all types of osteoplasty, whether situated superficially or in a deep wound; whether the work to be done is the procuring of the graft, the preparation of its

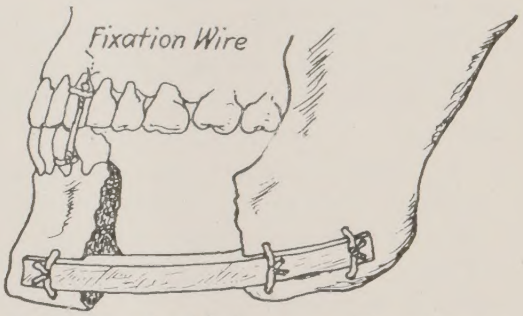


Fig. 5. Method of inlay graft on lower jaw so badly shattered as to leave a gap. Gutter cut with twin motor saw.

bed, the drilling of holes, the removal of bone for the correction of deformity or disease, or to allow the proper approximation and alignment of bone as in fragments in cases of fracture.

3. It should permit accurate control and guidance of the motor cutting tool in all wounds and at all angles.

4. It should permit easy and convenient control of the electric current.

5. It should be light in weight, small in bulk, and permit of easy transportation.

6. The motor should be universal and adapted to all types of electric current.

7. The motor instruments—saws of different types, drills, dowel shapers, etc.—should be held in place in the motor by an automatic catch favoring their speedy interchange.

8. The motor-cutting tools should be constructed similarly to those long-used by the artisan for working hard materials, and should be of sufficient variety to meet every requirement of bone carpentry. The twin saw for inlay work should be so constructed that it can be readily adjusted—to the fraction of a millimeter—by the gloved hands of the surgeon at the operating table. The dowel cutters with drills of corresponding diameters should vary in size sufficiently to meet all requirements.

9. The motor should furnish enough power to drive rapidly a saw or large drill through the thickest human cortex without tendency to stall.

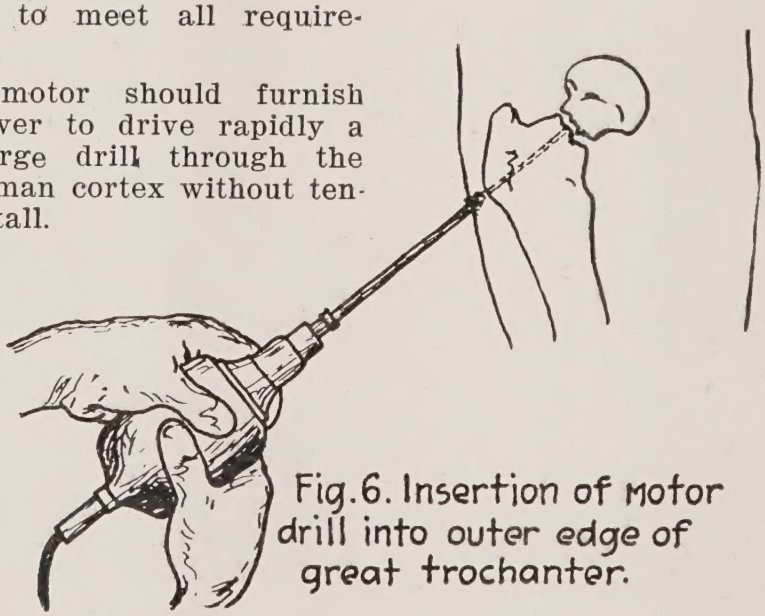


Fig.6. Insertion of motor drill into outer edge of great trochanter.

It is absolutely wrong to presume that due to a saw revolving at high speed there is a possibility of generating heat at the cutting surface, consequently burning the bone. A circular saw is designed to revolve at high speed. If a low speed motor be used or any device to reduce the speed of the motor, it will be found impractical as it requires a greater amount of revolutions to cut at a low speed, therefore the actual friction of the saw at a given portion of bone or cut of such bone will be approximately the same, if anything, in favor of the high speed saw.

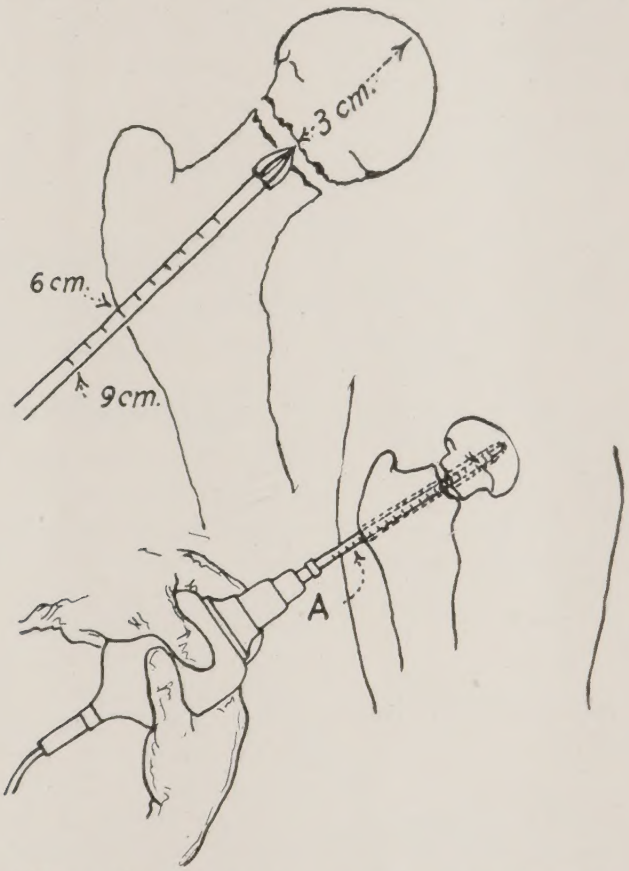
When sawing the thickest adult bone cortex, there may be danger of generating too much heat and the danger in this respect has been found to be approximately the same whether the saw is revolving at 250 or 6,000 R.P.M. To be exact the heat has been found to vary by less than 4 degrees. The sharper the saw, the less likely it is to generate heat, therefore, it is very important to renew the saw blades frequently.

The Albee motor saw described in this folder has been carefully devised and perfected to fulfill all of the above mentioned requirements.

The various instruments are interchangeable and can be attached directly to the motor shaft by means of an automatic clutch. The motor is covered with an adjustable sterilizable shell, eliminating flexible cables and shafts, which have always been troublesome. The weight of this entire equipment is about 4½ lbs., just sufficient to steady the drill or saw during its application.

Description of Component Parts

Dr. Albee's Electro Operative Bone Set consists of a small portable motor with detachable aspetic shell. This motor is universally constructed to operate without readjustment on all types of electric circuits such as, direct or alternating of various cycles. It is regularly adapted for the 110 V. direct, or 220 V. alternating supplies and can also be used on the 220 V. direct if it is used in connection with a 100 c. p. 220 V. lamp placed in series with the motor circuit; this, however, is rarely necessary as practically all electric light circuits are either 110 V. direct or 220 V. alternating current. This motor is very powerful. To reduce its weight, its component parts are steel punchings enclosed in an aluminum case. The motor itself is not to be sterilized. Electrical engineers have found it impossible to construct a light motor which will resist deterioration due to boiling or any other type of sterilization known that would be safe for this work. Both the insulating material, and carbon brushes are liable to disintegration from repeated subjection to heat. Therefore, the Hart-



When the end of the burr has reached the space between the fragments and is ready to enter the capital fragment, a reading on the graduated shaft of the burr is taken at A, one is then able to tell by a study of the röntgenogram just how far the burr should penetrate this fragment.

ley-Kenyon method of removable, sterilizable shell has been adopted, as it seems by all means to be the most desirable.

Sterilization

The two parts of the shell, guide handle, instruments and a flexible cord leading to the motor, that is, the part that can be disconnected from the electrical union on the conducting cord are to be sterilized by boiling or any other known process of sterilization. After sterilization, the operator will pick up the long part of the shell with his

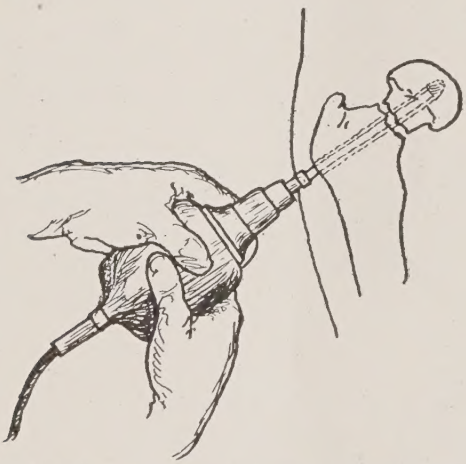
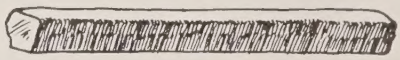


Fig. 7. When burr has reached the capital fragment.

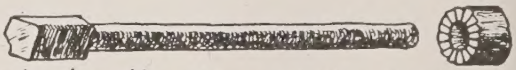
gloved hand, the nurse applies a small quantity of vaseline into the opening of the motor shaft, then inverts the motor into the shell with the pointed end downward and turns the motor toward the right until it is securely locked into the shell **(See Fig. 12).** It is in correct position when the two darts, one on the sterilizable shell, the other on the motor, come opposite each other, as shown in illustration. The operator then takes the other half of the sterilizable shell, places it over the motor and notes that the part of the shell through which the conducting cord is to fit will come over the connector in the motor. A bayonet fitting then locks the two parts of the sterilizable shell in position **(See Fig. 13),** the guide handle is then placed over the neck of the motor and securely fastened by the set screw.

When preparing the Albee Motor for sterilization, note that the automatic clutch and motor shaft extension are to remain in the pointed part of the sterilizable shell so that the complete exterior of the outfit will be sterilized.

The electric conducting cord, the part that has been sterilized, is supplied with a motor connection



Illustrates crest of tibia of the proper cross-section for a hip fracture peg



Illustrates the peg and the dowl cutter, which was used to shape it.

Fig. 8. Method of making peg.

to fit through an opening in the rear part of the sterilizable shell into the motor. When adjusting this, note that it is well pushed into place so the electrical contacts are properly made, then lock the entire cord in place by tightening the thumb screw fitted to the sterilizable shell near the opening for this cord. It is only necessary to sterilize part of the electrical conducting cord. This is the one fitted with metal tube on the one side and push contact on the other to fit the electrical union supplied with the main cord leading to the foot switch or foot controller as may be selected.

The foot switch without the speed control can be used with either side up. If the corrugated rubber side is up, connection is made by pushing down with the foot. If the other side is used, the foot should be placed over the

entire switch and by depressing the heel, the current is turned on or off (See Fig. 1).

With the foot speed controller, the foot should be placed over the entire switch by depressing slowly, the motor will start to revolve at a slow rate of speed; depressing more will increase its speed. Pushing the contact down all the way will give it highest speed. There are six variations in speed (See Fig 14.)

This foot controller is not made to be placed into the carrying case

Attaching Instrument to Motor

All instruments, whether saws, drills or otherwise are inserted by pushing them into the extended shaft of the motor, giving a slight turn toward right or left until the spring of the automatic chuck en-

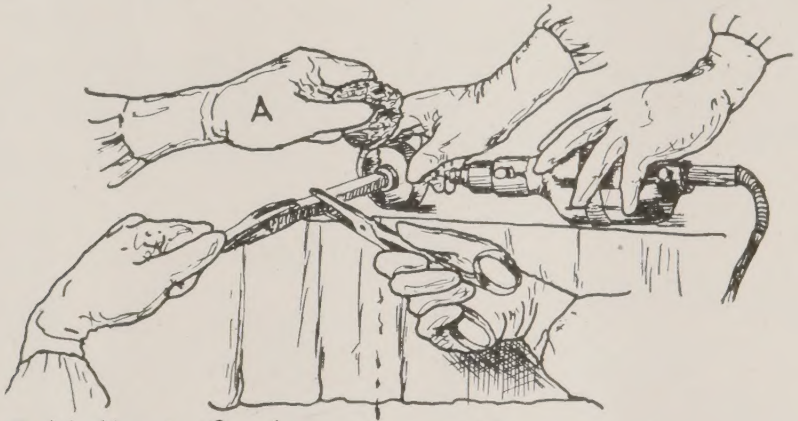


Fig.9. Method of using dowel shaper.
A is nurse supplying normal saline drip to ovoid over heating the graft as fed.

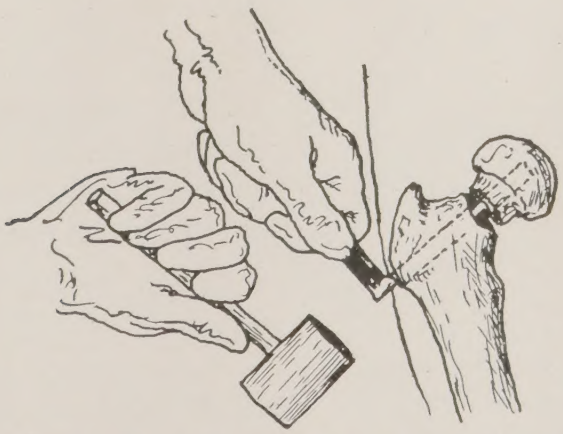


Fig.10. Graft peg being driven home.

A long conducting cord is furnished with either the foot switch or controller and a connector is mounted on these cords to which motor connection is to be adjusted. Do not boil the conducting cord leading to the foot switch or foot controller.

gages the slot in the shaft of the instrument.

To unlock the instruments place the thumb on the knurled ring on the extended shaft; release the spring which clamps the instrument on the inner shaft by thumb pressure, withdraw the instrument.

The Various Instruments

Circular saw (single) "D" (See Fig 15) is about 1¼" in diameter. With the aid of Doyen graduated washers or guards, it is used more than any other of the cutting tools These saws are of special construction, made of the best steel obtainable, very thin, and mounted on mandrel, by means of adjustable nuts which allow the saw blades to be changed when they become dull or accidentally broken.

The Twin Saw "M" (See Fig 16) is so constructed that it can be adjusted to any desired width, even to a fraction of a millimeter.

Fig. 11. Graft peg for fracture of the neck of femur in place.

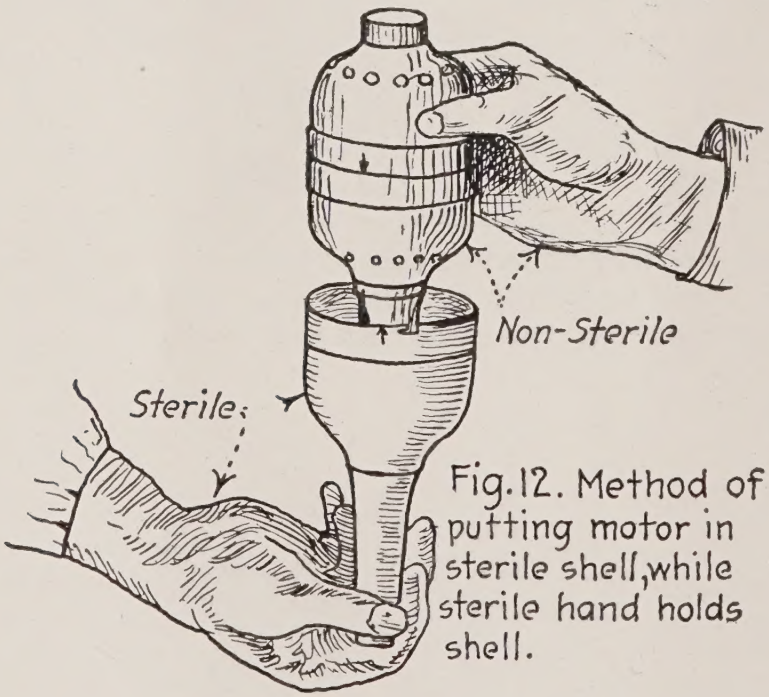


Fig. 12. Method of putting motor in sterile shell, while sterile hand holds shell.

It consists of two single saws which can be used singly or together. Each saw is mounted on separate mandrel. One of these mandrels is hollow and the interior fitted with an automatic chuck to hold the mandrel of the second saw in any given position and so make the saws adjustable at any distance apart that may be desired, according to the size of the bone being operated upon and the width of the graft or gutter to be formed.

In determining the size of the desired inlay or gutter, the saw teeth (while the saws are not locked together) are placed on the exposed bone in the manner of a compass or calipers and the saws separated or pushed nearer together according to how wide the gutter or graft is to be made. With the saws undisturbed, the shaft of the proximal saw is prevented from turning by placing the accompanying wrench or heavy

clamp on the flat-sided end of the shaft; while the operator locks the saws together by turning the saw (proximal) on the shaft away from him. The surgeon's gloved right hand should be protected with a piece of gauze over the long saw teeth during the procedure.

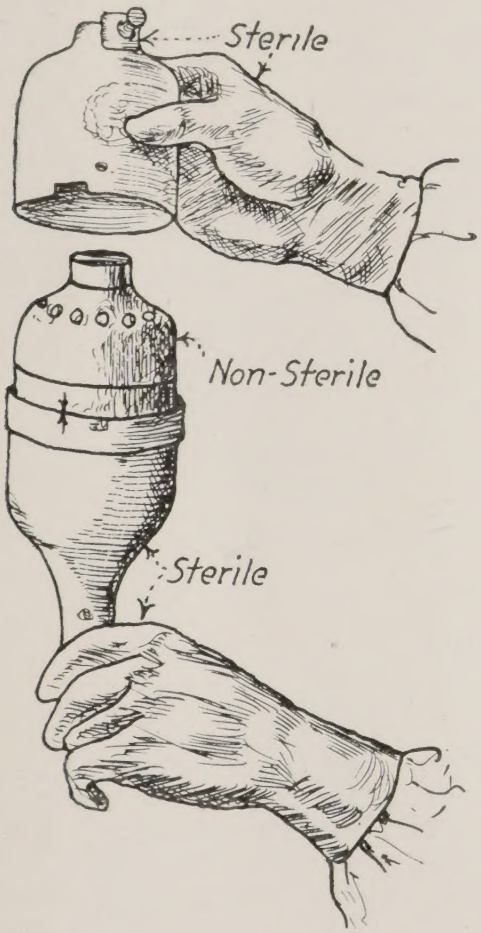


Fig 13. Sterile hands locking shells. *(See text)*

This twin saw consists of three distinctly separate parts (**See Fig. 16A**, illustration A). A saw mounted on mandrel which fits into the mounting of a second saw illustrated as "B," this in turn screws into fitting "C" and the shaft of "A" is tightened and locks into adjuster "D."

Three keys are supplied with this twin saw; one which fits the groove on the main shaft of the instrument illustrated as "C"; the other two keys to fit the discs which lock the blade into position on the mandrel. When putting on new saw blades, note that each blade has a small slot through which the pin must be adjusted which is mounted on the proximal or lower nut washer which is on the shaft. The teeth of the saw blade should always point in the direction the motor turns the saw and in case of the twin saw, the teeth on both saw blades should point in the same direction.

The instrument need not be taken apart for sterilization but boiled as a complete instrument.

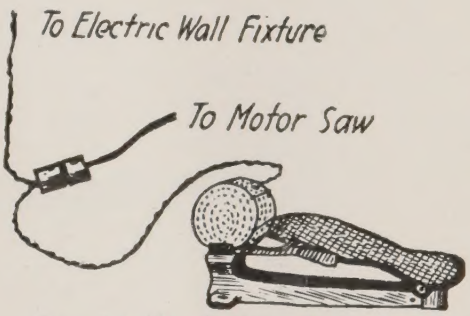


Fig 14 Foot Speed Controller

The Dowel Shaper "O" (**See Fig. 17**) or lathe for cutting dowels is fastened into the motor by the automatic catch, precisely as are the other instruments.

Its speed of rotation is reduced to ten times by the proper gearing. The size of the bone graft dowel or nail is regulated by the size of the cutter which is adjusted in this lathe or dowel shaper.

There are two cutters supplied with the instrument; the larger one for turning out a bone graft spike in doing Dr. Albee's operation for fracture of the neck of the femur. The smaller one for the making of pegs to hold inlay grafts in position; to fasten in place tuberosities or processes which have been fractured and in Arthrodesis operations such as

that of the astragalo-scaphoid joint, etc.; in other words, this dowel bone graft is used in place of metal nails and screws. (See long taper burr fraise "P.")

The best method of using the dowel shaper is to insert it into the motor, then placing the motor and doweler parallel with and on the edge of the instrument table (See Fig. 9). While the assistant steadies the motor and the doweler by gently pressing the same on the table, the operator, holding with a strong clamp the strip of bone to be shaped, pushes it into the doweler. When withdrawn, it is a perfectly round dowel, and is ready to be driven into the drill hole made by a drill of a size corresponding to the dowel cutter used. The strip of bone for these dowels is obtained usually from the tibia by means of the single or twin saw.

Cross-cut saw "Q" (See Fig. 18). This extra small saw is used for cutting the ends of the inlay graft or strip of bone which is being removed to produce a gutter. Its diameter is ¾". It therefore does not encroach into the gutter walls while it is cutting across the inlay.

Adjustable Guard "L" (See Fig. 19) is fitted with a spray connection and is a very important attachment. It is to be connected by sterile rubber tube with a douche bag suspended over the operating table, and maintains a constant spray of saline solution on the saw preventing friction, heat, and flying of the solution (See Fig. 1). This attachment is needed only when the hemastasis is poor or when the bone cortex is very thick. In practice, a sponge saturated with saline furnishes a few drops of solution on the saw, which is sufficient in the thickest bone cortex. When the cortex is thin, no saline is necessary. If the saw is sharp, no saline is necessary, even when the cortex is thick.

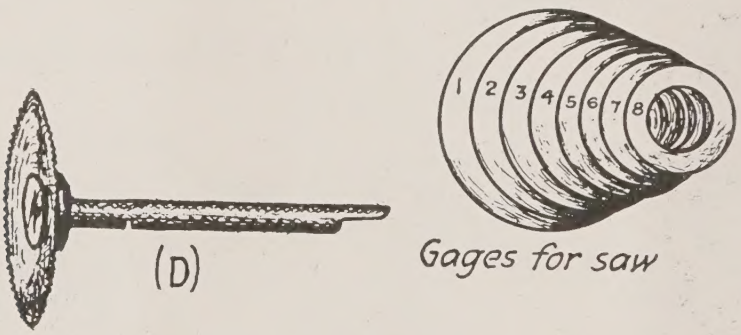


Fig. 15. Large Single Saw

The drills "J" (See Fig. 20) (the larger one for the small dowel cutter) are of the twist type, and their ends are fitted properly for the automatic chuck of the motor saw.

Long taper burr fraise "P" (See Fig. 21) for fracture of the neck of the femur has a burr end mounted on sufficiently long shaft to reach through the fragments of the neck of the femur, the end of which in turn is fitted for the automatic chuck.

This drill makes a hole into which a dowel made by the large cutter will fit snugly without compression (like a glass stopper in a bottle). This fit is very essential in order that the nourishment or the blood supply reach the graft

quickly. An irregularly shaped peg, not formed by a lathe or a section of the fibula, driven into a drill hole will be under great pressure in places, and loose with a space between the peg and the wall of the drill hole in other places. In either instance, the conditions for supply of nourishment to the graft are unfavorable because certain portions of the graft are under so great a pressure that anaemia exists in the surrounding cancellous bone with a possible destruction of the perepherial bone cells, while in other places there

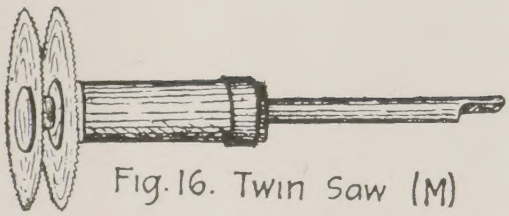


Fig. 16. Twin Saw (M)

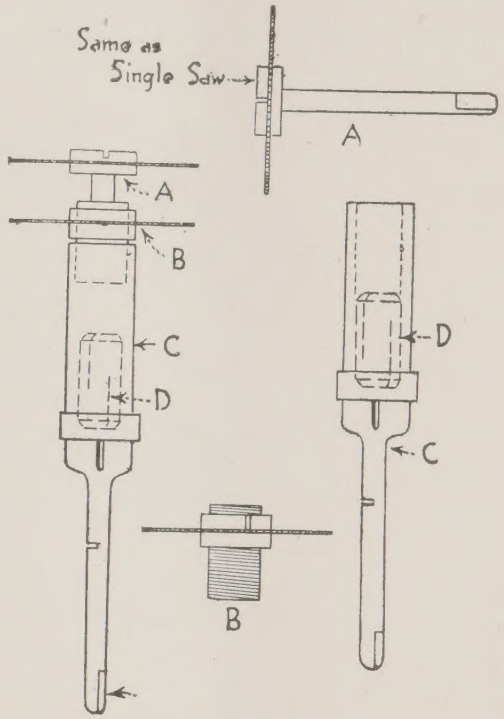


Fig. 16a Twin Saw

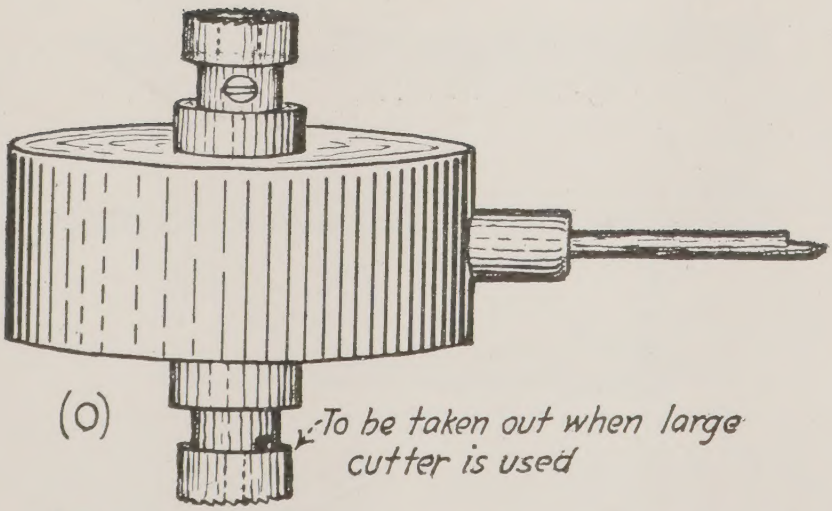


Fig. 17. Dowel shaper with two cutters

will be a space between the graft and the wall of the drill hole which will be occupied by blood or air, which is not favorable to a rapid establishment of a nourishing blood supply.

A graft should always be fitted most accurately and without pressure; this can be accomplished only by cutting tools such as have been described as a part of this outfit.

Reamer "C" (See Fig. 22). This is used for rounding off the edges of the openings made by twist drill "J" for suturing or bone pegs.

Spanners "E" and Wrench "F" (See Fig. 23) are supplied for locking and interchanging saw blades of the single saw "D" and twin saw "M." (Directions for putting on new saw blades; see Twin Saw "M".)

Adjustable Guard "L" (See Fig. 19.) This is to be fitted over the extended shaft of the motor and attached to sterilizable case and by rubber tube with the douche bag of sterile saline suspended over the operating table. The clamping collar holds this in place after properly tightening the set screw and then the screw holding the cord extension in accordance with

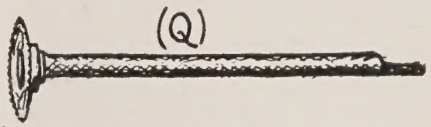


Fig.18. Small cross-cut saw

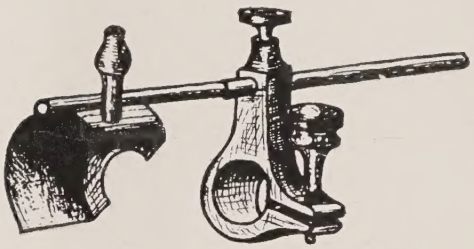


Fig.19. Adjustable guard with spray to use in connection with single or twin saw (L)

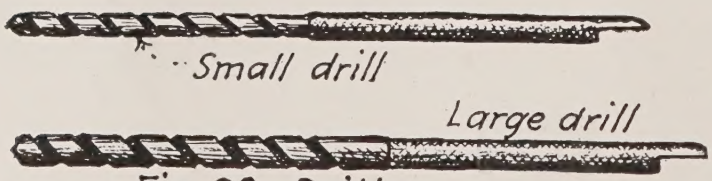


Fig. 20. Drills

Fig.21. Taper Burr Fraise

Fig 22 Reamer

the distance of either single or the twin saw. This attachment is necessary only where there is much uncontrolled bleeding or where the bone cortex is very thick and dense.

Angular Saw "N" (See Fig. 24). When attaching the angular saw must be parallel to the tightening screw of the motor handle, then tighten the screw holding the split collar of the angular saw. The instrument is then ready for use.

To sterilize, do not try to take this angular saw apart, but sterilize it as a unit.

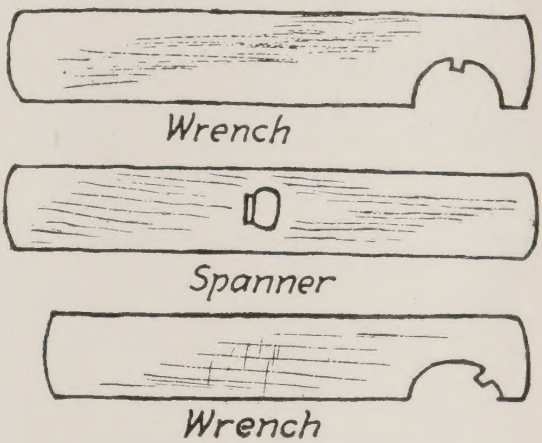


Fig. 23. Spanner & Wrenches

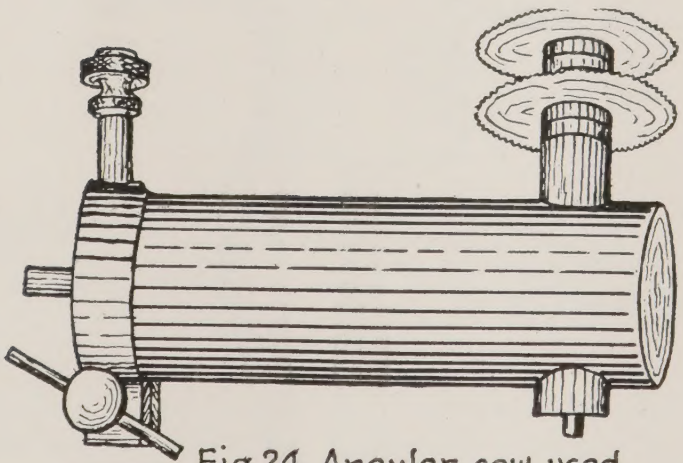


Fig. 24. Angular saw used as a single or twin saw. (N)

to the motor see that the set screw is in direct line with the fastening screw of the adjustable handle. Slip the extended shaft of the angular saw into the shaft opening of the motor. Press these parts together until the clamping collar on the angular saw snugly fits over the motor casing; hold the angular saw in place by tightening the set screw on the angular saw, which

The Angular Saw is constructed to be used either singly or as twin where the bone is deeply situated and the shell of the motor would prevent proper position of the cutting tool.

Dowel Shaper "O" (See Fig. 17). This instrument is to be used the same as the other appliances attached directly to the automatic chuck. It is to be sterilized with

out being taken apart. All instruments designed with gears and housings are made to be sterilized as a whole; do not try to take them apart, as the chances are they will never be put together again in proper relation unless sent to our factory.

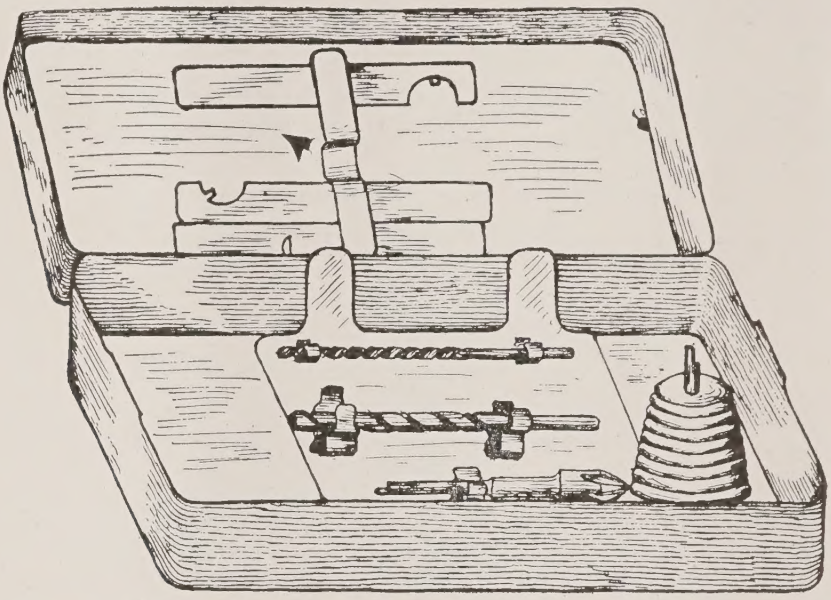


Fig. 25. Sterilizer case for drills and burrs

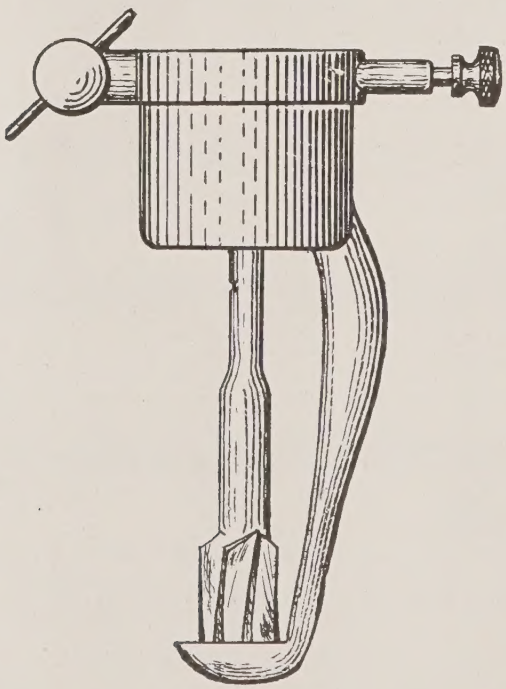
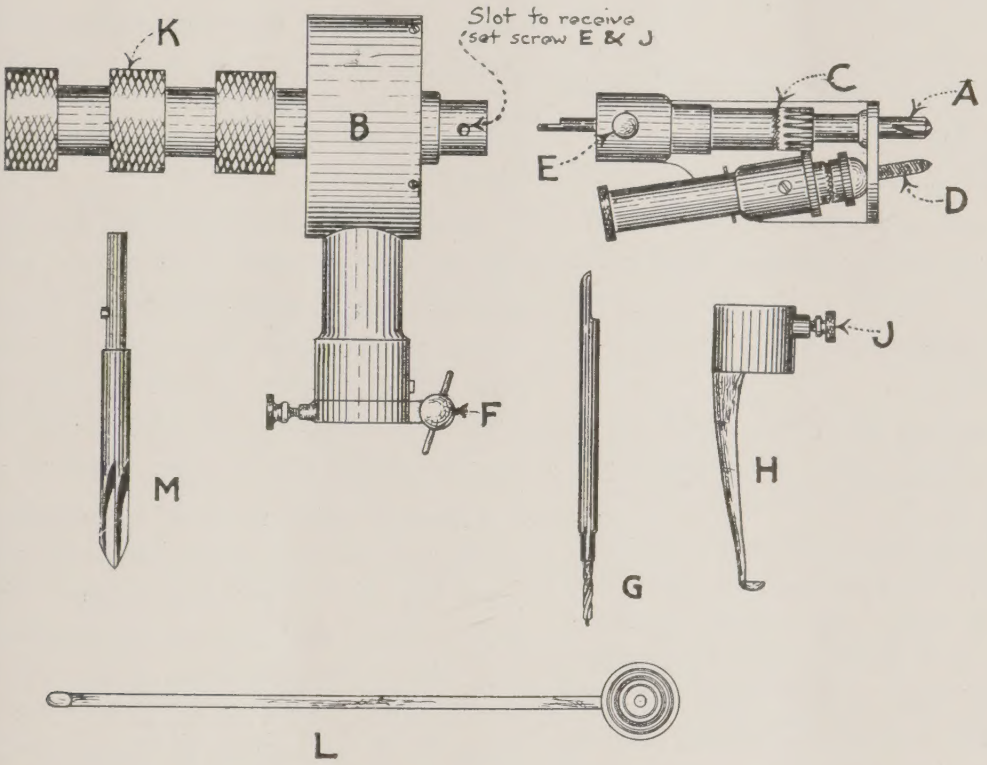


Fig. 26. Revolving Octeotome for laminectomy or plastic skull work.

Large revolving laminectomy osteotome (See Fig. 26). The spinal canal is entered by removing the spinous processes and one neural arch; the posterior segments of the remaining neural arches (which are to be removed) are then cut away rapidly with the revolving osteotome.

THE MARTELL-ALBEE AUTOMATIC TREPHINE



THE MARTELL ATTACHMENT G-347

TO BE USED IN CONNECTION WITH ALBEE MOTOR

THE KNY-SCHEERER CORP.

ONE of the most novel instruments and accessory devices to use in connection with the Albee Motor,—It represents the "Acmi" of the Surgical Instrument Maker's Art. The original instrument was devised by Dr. Th. de Martel of Paris, but used with an awkward flexible cable and shaft to transmit the motive power. Now the instrument has been developed for use with the Universal Motor of Dr. Albee.

The unique feature of this cranial trephine is the guide and automatic stopping of the trephine the moment the inner table of the skull is penetrated regardless of the amount of pressure the operator may exert upon the motor and handpiece. There is no possibility of injury to the dura or brain when this instrument is used, as the cutting drill is automatically stopped the moment the wall of the table is reduced to about ½ mm.

After the initial openings are made, the trephine is to be exchanged for a spiral osteotome "G" with guard "H" attached. This is inserted through the opening and a flap can be cut of whatever shape is desired. The handpiece is swiveled and permits free movement of the cutting surface in any direction.

To attach the same to the motor, place the shaft fitting into the automatic chuck of the Albee motor the same as any of the other instruments.

The cutting burr "A" will automatically stop when the resistence at the point of the burr is reduced as would be the case if the wall of the table is reduced to approximately ½ mm. This burr is actuated by the shaft geared in case "B" to a low speed, engaged by clutch "C," when the resistence at the point of the burr has weakened as outlined.

The clutch "C" automatically cuts out the burr.

The guide "D" is also fitted to a clutch; this guide will reduce in length in direct proportion to the cut made by the burr, therefore when the burr is automatically stopped the full pressure of the operator rests on the guide.

The set screw "E" and the collar tightener "F" should be drawn tight before the instrument is started.

For sterilization, it is not necessary to dismount the entire instrument; it can be boiled in its entirety. The gear case is filled with the proper grease which will not disintegrate by sterilization.

Two very important points must be observed; the first is, that the end of guide "D" is placed at the exact opposite position to the drill point "A," as it will feed into the shaft with every cut, and it must be reset for the next opening to be made.

Second, that when drilling, the attachment is held absolutely perpendicular, as otherwise the small leverage between the guide point and drill surface would be apt to force the small remaining piece of the inner table into the skull.

Having made the necessary openings in the skull, remove the trephine by loosening screw "E" and insert the rotary osteotome "G" into the opening and place the guide "H" over this rotary osteotome and lock it by properly closing set screw "J." This rotary saw is then introduced through one of the openings and will cut the table in any direction that it may be guided. The handle "K" guides the cutting position of the rotary saw at the will of the operator.

There is further a dura separator "L" which can be used as a guide for the button of the rotary saw.

There is also a sharp drill "M" supplied which is to fit into the attachment the same as the rotary saw; this is supplied for the purpose of starting cutter where surfaces are so rounded that the guide point will not set accurately.

Dont's

An Ounce of Prevention is Worth a Pound of Cure.

If you want your motor to be in condition at all times:—

Don't forget to remove the motor from the sterilizable shells before placing them in the sterilizer.

Don't sterilize the inner motor by washing it. If it needs cleaning, dry clean it.

Don't set it on a radiator, as electric connections and insulation may be melted off.

Don't forget to lock the shells of the motor properly.

Don't try to use a circular saw unless you feel absolutely sure that it is securely locked by the automatic catch into the shaft of the motor.

Don't push the saw too rapidly. Feed it forward slowly.

Don't have your foot switch or foot controller in position so that current could accidentally be turned on, as a circular saw is one of the most dangerous of instruments.

Don't grasp your motor lightly so it can get away from you. Get a good hold on it, as a revolving circular saw is apt to pull toward the line of rotation, although this is largely obviated by the high speed of the saw.

Don't try to use a circular saw to make a circular cut; that is, do not twist it while it is deeply inserted, as the saw will break every time. If it is necessary to cut in a circle, you can easily do so by making a series of short, straight cuts.

Don't let any one try to take the geared instruments apart. They are made to be sterilized in their entirety.

Don't try to use a circular saw at a low speed when using the foot controller. Always increase the motor to its highest speed. Drills are to be operated with the lower motor speeds, especially when starting the drill in hard cortical bone.

Don't use a monkey wrench to take apart the twin saw, as it will invariably turn off the small set pins. The necessary tools for taking this instrument apart are spanner and wrench, furnished with the equipment.

Don't condemn a saw because the blade revolves on the mandrel. You have not placed the saw blade in its proper relation to the set pin and fastened the adjusting nut.

Don't use the motor on a 220 V. direct supply. Its speed will be entirely too high and you are apt to do damage. It requires the resistance of a 220 V. 100 c. p. lamp in series with the motor. The motor is constructed for a 110 V. direct or 220 V. alternating current.

Don't try to operate a 110 V. motor from a 220 V. supply in connection with a lamp as above specified for any other purpose than for Albee bone trepanation operation. If it is also to be used for Martell attachment, the motor must be specially wound for the 220 V. supply.

Don't let the motor drop on its shaft; it will bind the cone clutch and burn out the bearing.

Don't forget to use a bit of vaseline in the motor clutch after every sterilization.

Don't have a local mechanic try to repair any parts of this instrument, should they break due to wear and tear or accident. It is by far cheaper for you to send them to the factory for attention instead of a local man trying to patch repairs, making your equipment unsatisfactory.

Don't hesitate to write us if you want any further information.

Dr. Fred H. Albee's book will prove a valuable investment, as a great many illustrations used in this have been kindly loaned to us by the publishers, Saunders & Co. If you do not have it, place your order now for a copy.

THE KNY-SCHEERER CORPORATION

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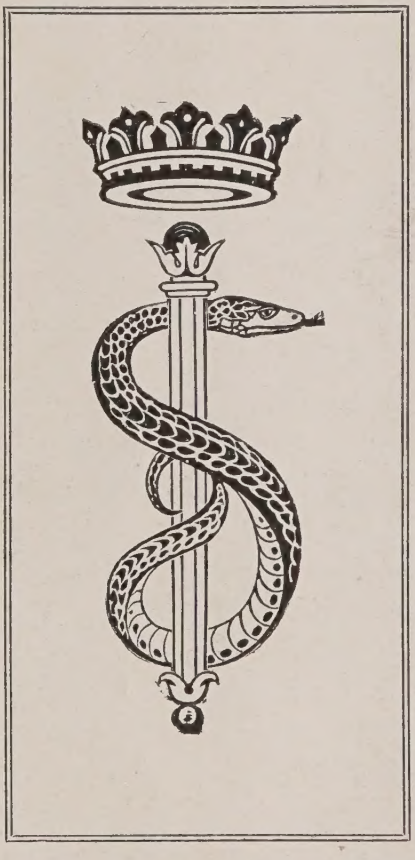
Bones, Surgery.

The Genuine Bears This Trade Mark



YOUR GUARANTEE OF PERFECT SATISFACTION